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(FILE 'HOME' ENTERED AT 15:11:09 ON 28 MAY 2004)  
FILE 'REGISTRY' ENTERED AT 15:11:21 ON 28 MAY 2004

L1 1 S UREA/CN  
SEL NAME L1  
FILE 'CA' ENTERED AT 15:12:10 ON 28 MAY 2004  
L2 20207 S (L1 OR E1-35 OR NH2CONH2) (7A) (DETECT? OR DETERMIN? OR ANALY? OR  
ASSES? OR ASSAY? OR ESTIMAT? OR EVALUAT? OR EXAMIN? OR MEASUR? OR  
MOONITOR? OR TEST? OR SENSE# OR SENSOR OR SENSING OR PROBE# OR  
PROBING OR QUANTIF? OR QUANTITAT?)  
L3 369 S L2 AND (POTENTIOMET? OR VOLTAMET? OR VOLTAMMET?)  
L4 5 S L3 AND WORKING ELECTRODE  
L5 41 S L3 AND (PLATINUM OR GOLD OR RHODIUM OR IRIIDIUM OR PT OR AU OR IR  
OR RH) (3A) ELECTRODE  
L6 10 S L3 AND (PULSE# OR PULSING OR PCA OR MULTIVARIATE OR PRINCIPLE  
COMPONENT)  
L7 52 S L4-6

=> d bib,ab 17 1-52

~~L7~~ ANSWER 10 OF 52 CA COPYRIGHT 2004 ACS on STN  
AN 136:125391 CA  
TI Urea adsorption on platinum single crystal stepped surfaces  
AU Climent, V.; Rodes, A.; Albalat, R.; Claret, J.; Feliu, J. M.; Aldaz,  
A.  
CS Departament de Quimica Fisica, Universitat d'Alacant, Alacant, E-03080,  
Spain  
SO Langmuir (2001), 17(26), 8260-8269  
AB Urea adsorption was studied at Pt(110) and stepped **platinum electrodes**  
with orientations vicinal to Pt(111) in the [1.hivin.10] and  
[01.hivin.1] zones. In situ IR spectra and cyclic voltammograms  
obtained in the **urea**-contg. solns. were **analyzed** as a function of the  
(110) or (100) step densities. At the same time, **voltammetric** data  
were combined with charge displacement expts. to det. the potential of  
zero total charge (pztc) in the presence of urea. The variation of the  
pztc with the step d. is similar to that previously obsd. for the same  
surfaces in sulfuric acid solns. thus confirming the anion-like  
behavior of urea mols. at **platinum electrodes**. Potential-dependent  
changes in the bonding of urea at the **Pt(110) electrode** were found to  
be similar to those previously reported for Pt(111), with N-bonded and  
O-bonding urea predominating at low and high coverages, resp. The same  
behavior is obsd. for stepped surfaces contg. (111) terraces and (110)  
steps. On the other hand, urea mols. bonded through the 2 nitrogen  
atoms are detected in the whole coverage range at surfaces with a high  
d. of (100) steps.

~~L7~~ ANSWER 16 OF 52 CA COPYRIGHT 2004 ACS on STN  
AN 130:273210 CA  
TI Urea adsorption on **Pt(111) electrodes**  
AU Climent, V.; Rodes, A.; Orts, J. M.; Aldaz, A.; Feliu, J. M.

CS Departament de Quimica Fisica, Universitat d'Alacant, Alacant, E-03080, Spain

SO Journal of Electroanalytical Chemistry (1999), 461(1,2), 65-75

AB The urea adlayers formed at the surface of Pt(111) electrodes immersed in urea-contg. perchloric acid solns. were characterized in situ by a combination of cyclic voltammetry, charge displacement and FTIRS expts. The data obtained concern the potential-dependent changes in coverage and bonding geometry for the adsorbed urea mols. In this respect, the IR spectra obtained at potentials <0.50 V suggest that the adsorbed urea species are bonded through only one of the nitrogen atoms. O-bonded urea mols. appear at higher potentials, being the major species at potentials around 0.70 V, for which satn. is attained. The abs. urea coverage was estd. from the voltammetric expts. and is ~0.45. This value was confirmed by a thermodynamical anal. of the charge densities involved in the formation of the urea adlayer for different potentials and urea concns. The charge d. and coverage values are consistent with a net exchange of one electron per adsorbed urea mol. All these data are compared with those previously reported for the Pt(100) electrode.

L7 ANSWER 18 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 130:72901 CA

TI Synthesis and optimization of permselective polymer (polyindoline) film

AU Ozden, Mustafa; Ekinci, Ergun; Karagozler, A. Ersin

CS Faculty of Arts & Sciences, Department of Chemistry, Inonu University, Malatya, 44069, Turk.

SO Journal of Solid State Electrochemistry (1998), 2(6), 427-431

AB A polyindoline permselective polymer film was readily synthesized by an electrochem. polymn. of indoline in an aq. soln. of KCl at a potential of 0.4 V vs. Ag/AgCl. The amperometric responses of the polyindoline film-coated platinum electrodes to electroactive (ascorbic acid, oxalic acid and hydrogen peroxide) and nonelectroactive (lactose, sucrose and urea) substances were measured at a potential of 0.7 V. Effects of various variables such as film thickness, concns. of monomer and electrolyte, and pH on the permselective behavior of the polymeric membrane were systematically studied and the optimal values were detd. Permselective polyindoline-coated electrodes prepd. in this 1-step procedure permitted hydrogen peroxide oxidn. while it prevented interference due to oxidizable species such as ascorbic acid and oxalic acid. As a result, it is believed that this polymeric membrane, owing to its permselective character, can be used as the protective material in the construction of hydrogen peroxide-based biosensors.

L7 ANSWER 24 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 124:311464 CA

TI Thick-film multichannel biosensors for simultaneous amperometric and potentiometric measurements

AU Silber, A.; Bisenberger, M.; Braeuchle, C.; Hampf, N.

CS Institute of Physical Chemistry, University of Munich, Sophienstrasse 11, Munich, D-80333, Germany

SO Sensors and Actuators, B: Chemical (1996), B30(2), 127-32

AB A seven-channel multibiosensor for simultaneous amperometric and potentiometric operation is described. The transducer is fabricated by screen-printing techniques in thick-film technol. and contains 14 gold electrodes, which act as working and counter electrodes, and one silver electrode, which is chlorinated to give an integrated silver/silver chloride ref. electrode. The ion-selective membranes are based on a poly(vinyl chloride)-poly(vinyl acetate) copolymer. Entrapment of enzymes is achieved by membranes made from org.-solvent-free aq. polymer dispersions, which can be applied to the sensor electrodes by screen-printing or solder dispenser systems. The sensor is integrated into a flow-injection-anal. (FIA) system and is applied to the anal. of blood serum electrolyte (K<sup>+</sup>, Li<sup>+</sup>) and metabolite (glucose, urea, lactate) status.

L7 ANSWER 26 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 120:3732 CA

TI Amperometric ion sensors and their applications in food chemistry and clinical chemistry

AU Senda, Mitsugi; Yamamoto, Yukitaka

CS Dep. Biosci., Fukui Prefect. Univ., Fukui, 910-11, Japan

SO Bioelectroanal., 2, Symp., 2nd (1993), Meeting Date 1992, 139-60.

Editor(s): Pungor, Erno. Publisher: Akad, Kiado, Budapest, Hung.

AB Amperometric ion sensors based on amperometry or voltammetry with a polarizable oil/water interface are described and discussed for their applicability in anal. of foods and body fluids. The amperometric sensor gives a current response proportional to the concn. of the analyte. The pulsed amperometric technique is used to follow the current response of the sensors, which allows the sensors high reproducibility and long lifetime. In amperometry or voltammetry, simultaneous detn. of two or more analytes with a single sensor can be achieved. Also, correction for (residual) current due to interfering (residual) substance(s) is relatively easy. Amperometric sensors for the detn. of K and Na ions and of volatile amines (ammonia and trimethylamine) in foods are described. A biosensor for urea and its applicability to body fluid anal. are presented. A creatinine biosensor also is described.

L7 ANSWER 30 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 116:98652 CA

TI Non-enzymatic response towards urea using a poly(L-glutamate)-modified platinum electrode

AU Maeda, Mizuo; Fujita, Yuji; Nakano, Koji; Takagi, Makoto

CS Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan

SO Journal of the Chemical Society, Chemical Communications (1991), (24), 1724-5

AB An electrochem. response towards urea was obtained by using a poly(L-glutamate)-immobilized Pt electrode which does not comprise the enzyme-relying transducer.

L7 ANSWER 31 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 116:93799 CA

TI Adsorption of urea on platinum(poly), platinum(111) and platinum(100):  
**voltammetric** and UHV study  
AU Rhee, Choong Kyun  
CS Dep. Chem., Univ. Illinois, Urbana, IL, 61801, USA  
SO Journal of the Electrochemical Society (1992), 139(1), 13C-16C  
AB The anion-like behavior of urea on Pt single crystals was confirmed,  
and the interaction of the mol. shows dependency of surface crystallog.  
orientations of the electrodes. Because the adsorption strength of  
urea was expected to be weak, the possibility of a UHV expt. of the  
**urea/Pt** single-crystal system was **tested** and was successful. The obsd.  
c(2 x 4) LEED pattern of urea on Pt(100) can be a guideline for theor.  
study to explain the remarkable modification of the voltammogram by the  
mol. However, further research is needed to fully understand the  
adsorption process of **urea**, including **quant. measurements** of adsorption  
and further LEED studies that should provide conclusive information on  
the structure of urea adlattice and the no. of electrons transferred  
during adsorption.

(L7) ANSWER 32 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 116:70450 CA

TI Platinized-titanium electrodes for urea oxidation. Part II.  
Concentric spiral coil geometry

AU Patzer, John F., II; Wolfson, S. K., Jr.; Yao, S. J.

CS Dep. Chem. Eng., Univ. Pittsburgh, Pittsburgh, PA, 15261, USA

SO Journal of Molecular Catalysis (1991), 70(2), 231-42

AB Highly active urea electro-oxidn. catalysts were prepd. by  
electrodeposition of Pt onto Ti in a novel, concentric spiral coil  
geometry. The concentric spiral coil geometry can be used directly in  
construction of electrochem. reactors. The Pt deposition from  
chloroplatinic acid required about 1.5 times the stoichiometric charge.  
Projection of **urea** conversion activity from cyclic **voltammetry**  
**measurements** to a clin.-scale, portable hemodialysis system indicates  
that approx. 10 g of Pt will be required for the clin.-scale system.  
The specific **urea** conversion activity, as **measured** by cyclic  
**voltammetry**, is linearly related to the specific Pt surface area of the  
deposition. The depositional growth morphol. is found to be self-  
similar, with a fractal dimension that lies somewhere between uniform  
deposition and hemispherical growth.

(L7) ANSWER 33 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 116:70449 CA

TI Platinized-titanium electrodes for urea oxidation. Part I.  
Demonstration of efficacy

AU Patzer, John F., II; Yao, S. J.; Wolfson, S. K., Jr.

CS Dep. Chem. Eng., Univ. Pittsburgh, Pittsburgh, PA, 15261, USA

SO Journal of Molecular Catalysis (1991), 70(2), 217-30

AB Electrodes that are highly electrocatalytically active for urea oxidn.  
were made by platinum electrodeposition onto minimally pretreated  
titanium surfaces. The Pt deposition from chloroplatinic acid required  
approx. sixteen times the stoichiometric charge requirement. Selected  
electrodes were **evaluated** for **urea** oxidn. activity by a cyclic

voltammetry method. A max. in Pt utilization for urea oxidn. was obsd. at a Pt loading of -1g/100 g Ti. The platinized Ti surfaces were as much as 1900 times more active for urea oxidn. than smooth Pt surfaces on a per unit mass of Pt basis. Extrapolation of these results to clin.-scale dialyzate regeneration systems indicates that about 5 g Pt will be required for a clin.-scale deureation reactor.

L7 ANSWER 37 OF 52 CA COPYRIGHT 2004 ACS ON STN

AN 110:20620 CA

TI An integrated multibiosensor for simultaneous amperometric and potentiometric measurement

AU Kimura, J.; Murakami, T.; Kuriyama, T.; Karube, I.

CS NEC Corp., Kawasaki, 213, Japan

SO Sensors and Actuators (1988), 15(4), 435-43

AB A multibiosensor, in which a glucose **sensor** based on amperometry and a **urea sensor** based on **potentiometry** are integrated, has been realized by a complementary use of ISFETs and micro-patterned planar **gold electrodes**. This multibiosensor is composed of two ISFETs and 3 micro-planar **Au electrodes** on a Si on sapphire (SOS) device. On the back surface Au layer, 1 of the electrodes works both as a counter electrode for the amperometric measurement and as a pseudo ref. electrode for the **potentiometric** measurement. Glucose oxidase (GOD)-immobilized membrane, urease-immobilized membrane, and bovine serum albumin (BSA) crosslinking membranes were deposited in appropriate positions by a lift-off method, 1 of the integrated circuit (IC) fabrication processes. Consequently, the multibiosensor is very suitable for miniaturization and mass prodn. A glucose concn. in the range 1-100 mg/dL and a urea concn. in the range 5-100 mg/dL were measured with a good relation. In the multibiosensor, amperometry and **potentiometry** exist on a complementary basis and each process provides what the other needs. The multibiosensor can thus be called a complementary multibiosensor (COMBIS).

=> log y

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